(2) a display, the display being coupled to the analysis module, and the display displaying the ECG waveform, the value pertaining to cardiac output, the blood pressure information, the carbon dioxide information, and the pulse oximetry information,

(3) communication interface capable of establishing a communication link between the patient monitoring system and a local area network of a medical facility in which the patient monitoring system is located, and

(4) a dial operator input device,

wherein the display displays a plurality of parameter windows which respectively display the cardiac output information, the ECG information, the blood pressure information, the pulse oximetry information, and the carbon dioxide information;

wherein the dial operator input device is rotatable in either direction to highlight different parameter windows; and

wherein, when the cardiac output parameter window is highlighted, and the dial operator input device is pressed while the cardiac output parameter window is highlighted, the display displays a plurality of cardiac output menu options, the cardiac output menu options being selectable by an operator to cause the display to display additional information pertaining to cardiac output to the operator or to receive inputs from the operator to adjust processing of the signal from the cardiac output sensor.

REMARKS

Entry of the above amendments is respectfully requested. In the specification, various reference numerals have been corrected. In the claims, minor grammatical changes have been made. These amendments are not narrowing amendments. No new matter has been added.

Applicant believes that the present application is in condition for allowance. Favorable consideration of the application as amended is therefore respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

° ***Marked-up version of paragraph [0032] at page 7:***

Additional sensors may also be connected to the console 110. For example, many commercially available sensors are capable of transmitting data via an RS-232 link. In Fig. 1, respective RS-232 links may be used to transmit data from a plurality of additional sensors 155 to an interface 157, with the interface 157 retransmitting the data to the console 110 by a serial or network link. The sensors 155 may be the same or different types of sensors as the sensors 141-[145] 146.

° ***Marked up version of paragraph [0033] at pages 7 and 8:***

The input signals from the sensors 141-[145] 146 are processed at the console 110 by amplifying-and-filtering circuitry 165, analog-to-digital (A/D) conversion circuitry 170, and an analysis module 175. Depending on the manner in which the sensors 155 provide data to the console 110, the signals from the sensors 155 may be processed by some or all of this circuitry as well. The amplifying-and-filtering circuitry 165, the A/D conversion circuitry 170, and the analysis module 175 may be discrete circuitry, may be incorporated as an integrated circuit (e.g., an application specific integrated circuit), or may be a combination of both.

° ***Marked up version of paragraph [0037] at pages 8 and 9:***

The console 110 also includes a power supply 196. The power supply 196 powers the console 110 and receives input power from either an external power source [197] 194 or an internal power source 198. The console 110 is preferably capable of being connected to the external power source [197] 194 by way of a port or docking station. The internal power source 160 is preferably a rechargeable battery and is capable of being recharged when the console 110 is received by the docking station.

° ***Marked up version of paragraph [0054] at pages 17 and 18:***

If an operator input is received selecting the secondary parameters button 306, then a secondary parameters menu 350 is displayed as shown in Fig. 8. The secondary parameters menu 350 permits the operator to select which parameters are to be displayed as secondary parameters in the ICG parameter window 266. Three secondary parameters from Tables 1 and 2 are set forth in a displayed list 352 and can be selected

for display in the parameter window [366] 266. The menu 350 permits the operator to select three choices from the parameter list, and these choices are then displayed in the parameter window [366] 266. The parameter that has been assigned to the primary parameter position is not included in the list of parameters available for secondary parameter display.

- ***Marked up version of paragraph [0056] at pages 18 and 19:***

If an operator input is received selecting the trends button 310, then trending information for the cardiac parameters is displayed in tabular or graphical format. A trend is a graphic representation of one parameter over a specified period of time. Every non-episodic parameter is sampled 30 times a minute. A median value is determined and that value is stored for trend display at one-minute resolution. Episodic parameters (NBP, etc.) are stored every time one occurs. Any combination of parameters may be trended as determined by operator inputs. The cardiac output information in Tables 1 and 2 can be trended along with ECG data and all of the other information collected by the sensors 141-[145] 146 and 155.

- ***Marked up version of paragraph [0064] at page 21:***

Referring now to Fig. 20A, in operation and after system initialization, the monitoring system 100 continuously acquires the physiological signals from the patient using the input devices 105 (the electrodes E_1, E_2 ... E_n and the sensors 141-[145] 146 and 155) at step 450. At step 452, the analysis module processes the physiological signals from the patient. At step 456, the processed data is displayed to the operator.

- ***Marked up version of paragraph [0068] at pages 22 and 23:***

The patient monitoring system 100 also processes information from other sensors. For example, in connection with ECG monitoring, 12SL monitoring is performed. In the illustrated embodiment, ten electrodes are used to continuously acquire ECG signals from the patient (RA, LA, LL, RL, V1, V2, V3, V4, V5 and V6). The ECG signals are transmitted to the input terminal 130 of the console 110 via the interface cable 125. The ECG signals [110] 111 are provided to the instrumentation amplifier 180 which combines, amplifies and filters the ECG signals resulting in a standard twelve-lead ECG. The resulting multi-lead ECG is provided to the A/D conversion circuit 170 which samples each lead of the multi-lead ECG to create a digital

signal representing the multi-lead ECG, and provides the digital multi-lead ECG to the analysis module 175. The multi-lead ECG provided to the analysis module 175 includes ECG leads I, II, V1, V2, V3, V4, V5 and V6 which are acquired directly from the patient leads and leads III, aVR, aVF, and aVL which are derived.

- ***Marked up rewritten claims:***

1. (Once Amended) A patient monitoring system comprising:

(A) a non-invasive cardiac output sensor, the non-invasive cardiac output sensor being capable of acquiring a signal from a patient indicative of blood flow through a heart of the patient;

(B) a multi-lead electrocardiogram (ECG) sensor, the multi-lead ECG sensor comprising a plurality of ECG electrodes capable of acquiring a plurality of ECG signals from the patient; and

(C) a patient monitor console, including

(1) an analysis module, the analysis module being coupled to the non-invasive cardiac output sensor and to the multi-lead ECG sensor, the analysis module processing the signal from the patient indicative of blood flow to produce a value pertaining to cardiac output, and

(2) a display, the display being coupled to the analysis module, and the display [displays] <u>displaying</u> the value pertaining to cardiac output and an ECG waveform generated based on the ECG signals.

21. (Once Amended) A patient monitoring system comprising:

(A) a non-invasive cardiac output sensor, the non-invasive cardiac output sensor being capable of acquiring a signal from a patient indicative of blood flow through a heart of the patient;

(B) a communication interface, the communication interface being capable of establishing a communication link between the patient monitoring system and a local area network of a medical facility in which the patient monitoring system is located; and

(C) a patient monitor console, including

(1) an analysis module, the analysis module being coupled to the non-invasive cardiac output sensor, the analysis module processing the signal from the patient indicative of blood flow to produce a value pertaining to cardiac output, and

(2) a display, the display being coupled to the analysis module, and the display [displays] displaying the value pertaining to cardiac output; and

wherein the communication interface is capable of transmitting the value pertaining to cardiac output over the local area network.

37. (Once Amended) A patient monitoring system comprising:

(A) a non-invasive cardiac output sensor, the non-invasive cardiac output sensor being capable of acquiring a signal from a patient indicative of blood flow through a heart of the patient, the non-invasive cardiac output sensor comprising first and second electrodes;

(B) a multi-lead electrocardiogram (ECG) sensor, the multi-lead ECG sensor comprising a plurality of ECG electrodes capable of acquiring a plurality of ECG signals from the patient;

(C) a blood pressure sensor, the blood pressure sensor being capable of acquiring blood pressure information from the patient;

(D) a pulse oximetry sensor, the pulse oximetry sensor being capable of acquiring pulse oximetry information from the patient;

(E) a carbon dioxide sensor, the carbon dioxide sensor being capable of acquiring information pertaining to carbon dioxide content in respiratory gas of the patient;

(F) a patient monitor console, including

(1) an analysis module, the analysis module being coupled to the non-invasive cardiac output sensor, the multi-lead ECG sensor, the blood pressure sensor, the pulse oximetry sensor, and the carbon dioxide sensor, the analysis module processing the signal from the patient indicative of blood flow to produce a value pertaining to cardiac output, the analysis module producing the value pertaining to cardiac output by determining an impedance between the first and second

electrodes, the impedance between the first and second electrodes being a function of an amount of blood located in a blood flow path that passes through the heart of the patient, the value pertaining to cardiac output [pertains] pertaining to a volume of blood pumped by the heart per unit time,

(2) a display, the display being coupled to the analysis module, and the display displaying the ECG waveform, the value pertaining to cardiac output, the blood pressure information, the carbon dioxide information, and the pulse oximetry information,

(3) communication interface capable of establishing a communication link between the patient monitoring system and a local area network of a medical facility in which the patient monitoring system is located, and

(4) a dial operator input device,

wherein the display displays a plurality of parameter windows which respectively display the cardiac output information, the ECG information, the blood pressure information, the pulse oximetry information, and the carbon dioxide information;

wherein the dial operator input device is rotatable in either direction to highlight different parameter windows; and

wherein, when the cardiac output parameter window is highlighted, and the dial operator input device is pressed while the cardiac output parameter window is highlighted, the display displays a plurality of cardiac output menu options, the cardiac output menu options being selectable by an operator to cause the display to display additional information pertaining to cardiac output to the operator or to receive inputs from the operator to adjust processing of the signal from the cardiac output sensor.